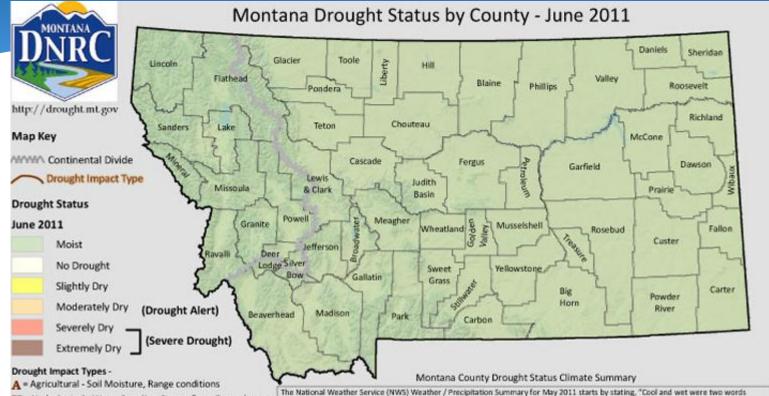


Montana Drought Status June 2011



H = Hydrological - Water Supplies, Streamflow, Groundwater

Drought Alert - Governor's Drought Advisory Committee strongly encourages local

officials to convene local drought committees.

Severe Drought - Local officials

should have local drought planning efforts underway or should reconvene the local drought committee at the earliest opportunity.

For recommended responses, see the Montana Drought Plan



http://nris.mt.gov/drought/

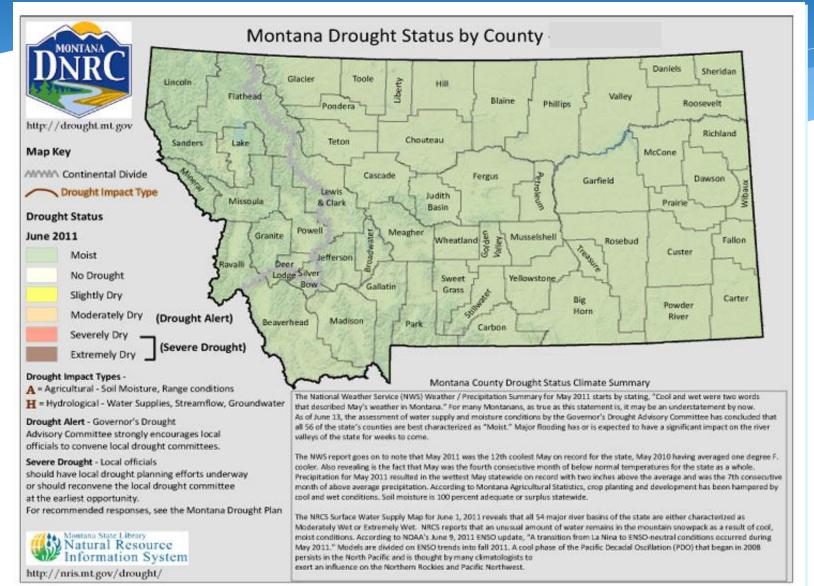
The National Weather Service (NWS) Weather / Precipitation Summary for May 2011 starts by stating, "Cool and wet were two words that described May's weather in Montana." For many Montanans, as true as this statement is, it may be an understatement by now. As of June 13, the assessment of water supply and moisture conditions by the Governor's Drought Advisory Committee has concluded that all 56 of the state's counties are best characterized as "Moist." Major flooding has or is expected to have a significant impact on the river valleys of the state for weeks to come.

The NWS report goes on to note that May 2011 was the 12th coolest May on record for the state, May 2010 having averaged one degree F, cooler. Also revealing is the fact that May was the fourth consecutive month of below normal temperatures for the state as a whole. Precipitation for May 2011 resulted in the wettest May statewide on record with two inches above the average and was the 7th consecutive month of above average precipitation. According to Montana Agricultural Statistics, crop planting and development has been hampered by cool and wet conditions. Soil moisture is 100 percent adequate or surplus statewide.

The NRCS Surface Water Supply Map for June 1, 2011 reveals that all 54 major river basins of the state are either characterized as Moderately Wet or Extremely Wet. NRCS reports that an unusual amount of water remains in the mountain snowpack as a result of cool, moist conditions. According to NDAA's June 9, 2011 ENSO update, "A transition from La Nina to ENSO-neutral conditions occurred during May 2011." Models are divided on ENSO trends into fall 2011. A cool phase of the Pacific Decadal Oscillation (PDO) that began in 2008 persists in the North Pacific and is thought by many climatologists to exert an influence on the Northern Rockies and Pacific Northwest.



Montana Drought Status July 2011



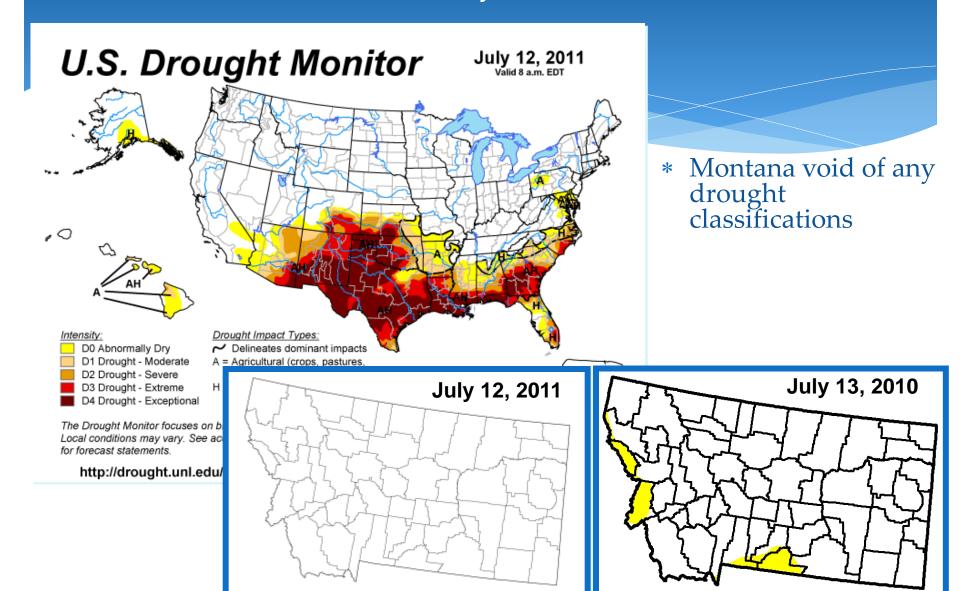


Governor's Drought Advisory Committee

July 20, 2011 National Weather Service David Bernhardt

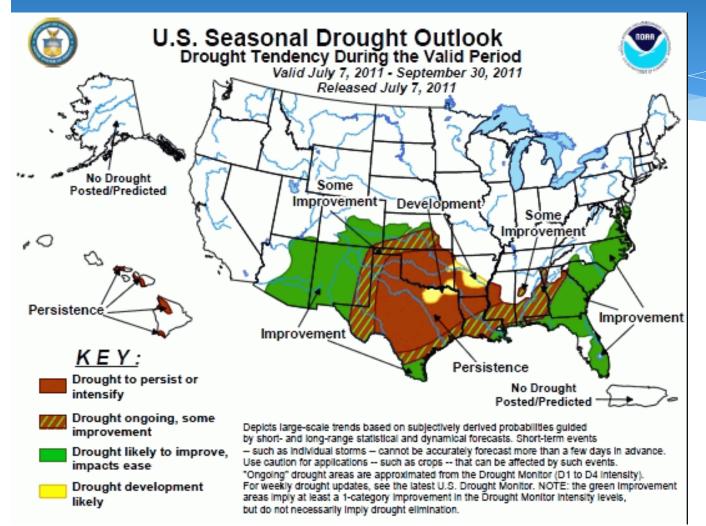


National Drought Monitor Issued July 12, 2011





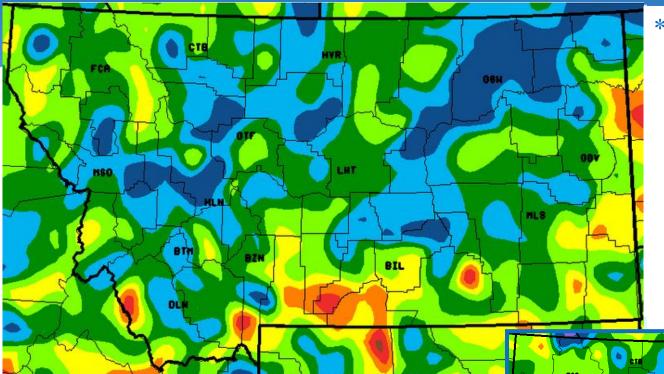
Drought Outlook through August Issued July 7, 2011



* No drought development forecast for Montana through September



Percent of Normal Precipitation June 2011



- * Most of Montana near to above normal
 - * Isolated areas south and east below to well below normal

June 2011 Percent of Normal Precipitation

Ported of Normal: 1971-2000

20 40 60 85 115 150 200

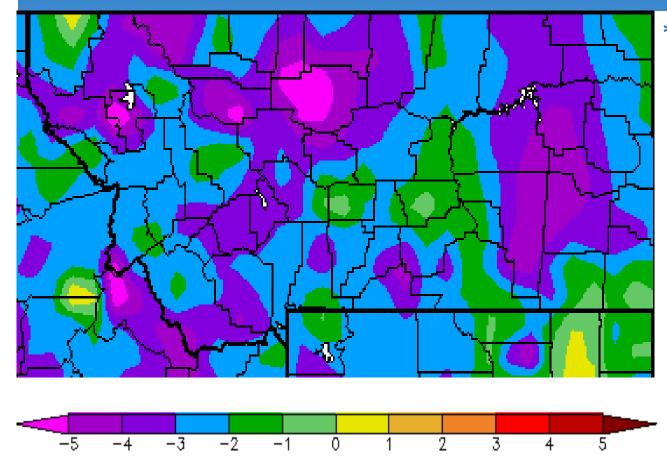
NOTE: Data used to generate this image are PROVISIONAL AND SUBJECT TO CHANGE.

http://www.

May 2011



Departure from Average Temperature June 2011



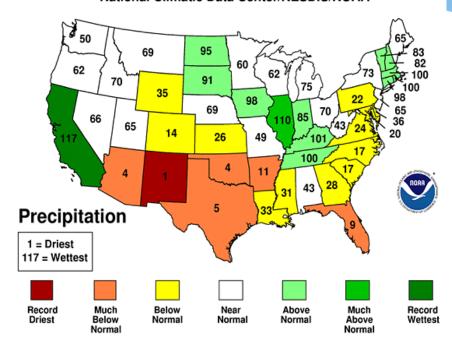
- * All of Montana averaged below normal
 - * Generally 2 5 degrees below normal



Precipitation Rankings <u>June 2011 and Last 12 Months</u>

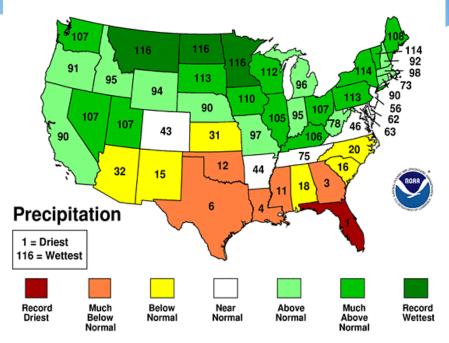


National Climatic Data Center/NESDIS/NOAA



Jul 2010-Jun 2011 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA

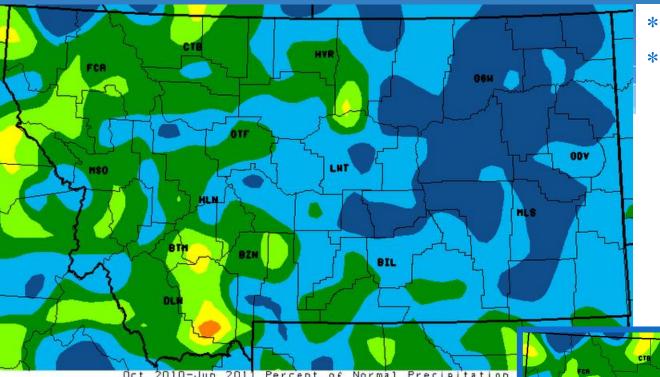


- * June near normal
 - * 69th driest
 - * 49th wettest

* Last 12 months (July 2010 through June 2010) wettest on record for that period



Percent of Normal Precipitation Water Year 2011



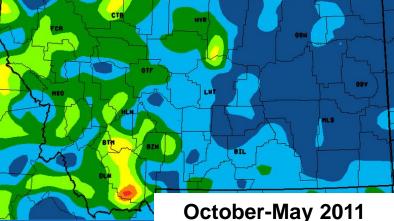
- * October June
- * Most of Montana remains above to well above normal

ct 2010-Jun 2011 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

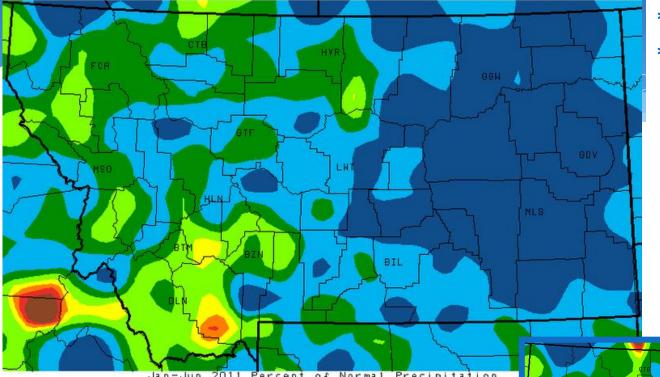
NOTE: Data used to generate this image are PROVISIONAL AND SUBJECT TO CHANGE.

http://www.wr





Percent of Normal Precipitation Calendar Year 2011



- * January June
- * Most of Montana remains above to well above normal

January-May 2011

Jan-Jun 2011 Fercent of Normal Precipitation
Period of Normal: 1971-2000

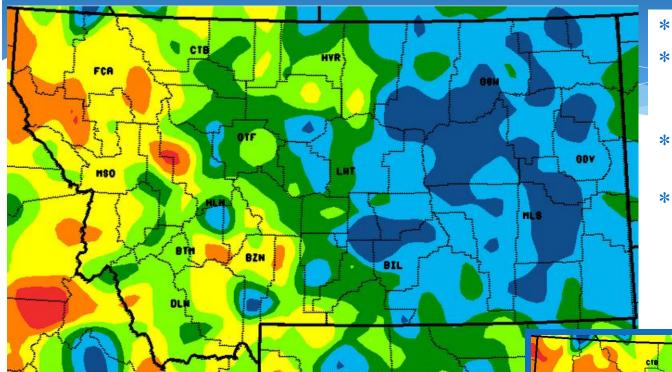
20 40 60 85 115 150 200

NOTE: Data used to generate this image are PROVISIONAL AND SUBJECT TO CHANGE.

http://www.w

NORA

Percent of Normal Precipitation Crop Year 2011



- * April June
- * West of the divide- below to wellbelow normal
- * Central near to above normal
- * East well above normal

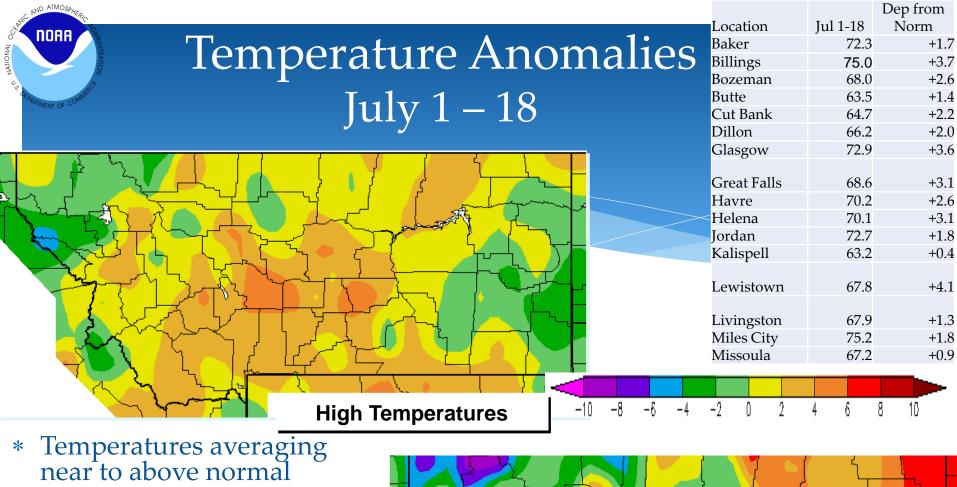
April-May 2011

2011 Percent of Normal Precipitation
Period of Normal: 1971-2000

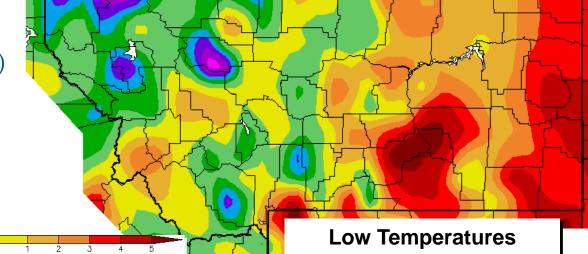
20 40 60 85 115 150 200

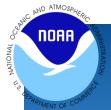
NOTE: Data used to generate this image are PROVISIONAL AND SUBJECT TO CHANGE.

http://www.wrf



- * Highs 4 below (green) to 5 degrees above normal (orange)
- * Lows 1-3 degrees below normal west to 3-5 degrees above normal east





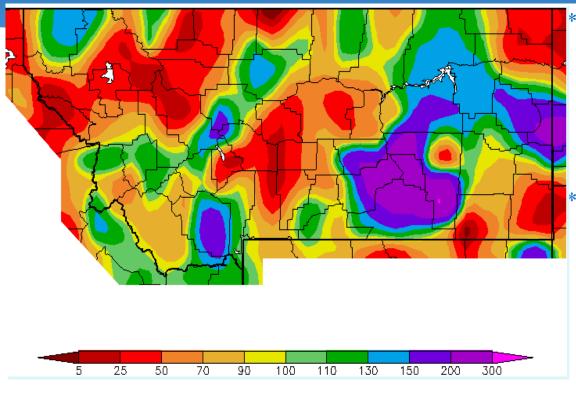
Jul 17-20 2011 heat

- * Highest temp 106°F in northeast Fergus County
 - * 103°F at Fort Benton and Hardin
- * Lows in the lower 70s east
- * Very humid east dew point temperature of 77°F at Sidney
 - * Possibly the highest known dew point in Montana
 - * Highest dew points since June 2005.
- * Followed by cold front and gusty winds over 50 mph gusts along Rocky Mountain Front.



Percent of Average Precipitation July 1 – 18

Location	Jul 1-18	% of Norm
Baker	0.12	17%
Billings	0.90	105%
Bozeman	0.74	89%
Butte	0.69	70%
Cut Bank	0.06	8%
Dillon	0.47	60%
Glasgow	1.50	117%
Great Falls	0.85	90%
Havre	1.01	103%
Helena	1.19	142%
Jordan	2.02	176%
Kalispell	0.29	31%
Lewistown	0.73	53%
Livingston	0.28	27%
Miles City	1.01	93%
Missoula	0.51	71%
Mullan Pass	0.45	52%
Wolf Point	1.81	141%
Glendive	1.80	150%
Sidney	1.30	89%
BZN-MSU	0.80	83%

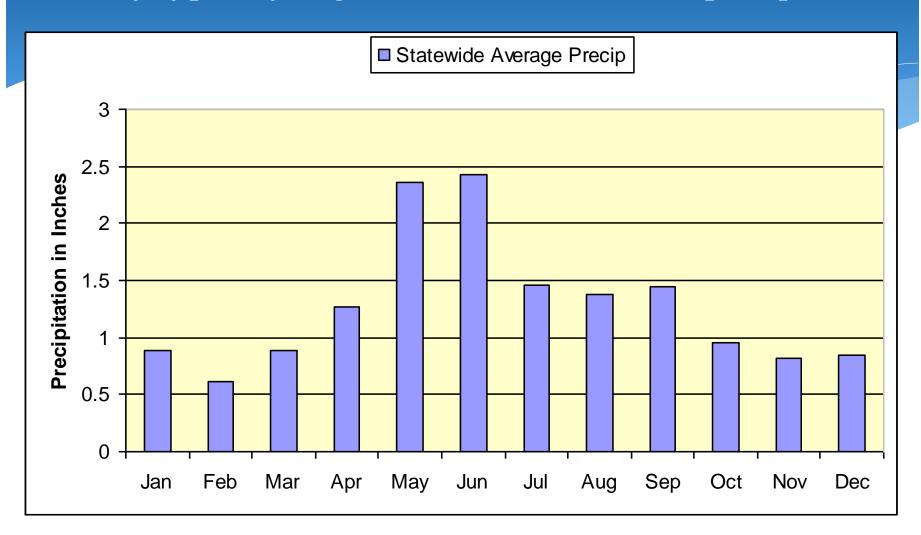


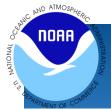
Well above normal portions of eastern, southwest and northwest Montana.

Large swaths of below normal from westcentral through north central, northeast and central Montana

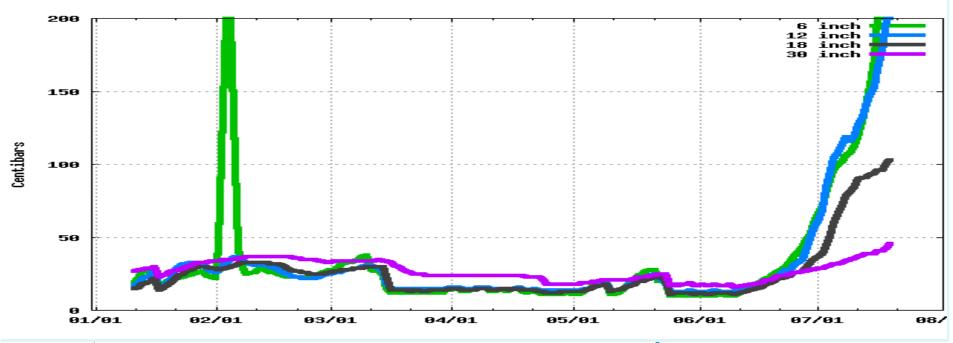


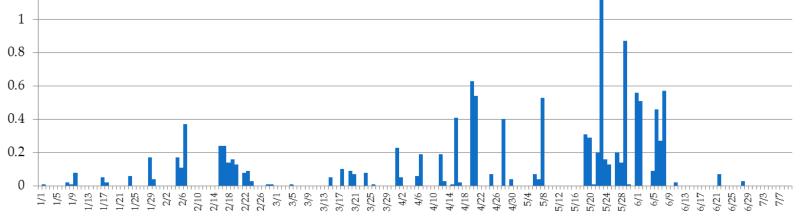
Statewide Average Precipitation July typically begins decrease in summer precipitation





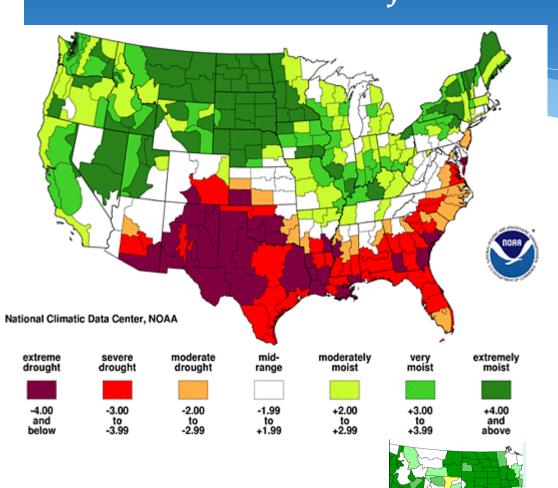
Great Falls Soil Moisture



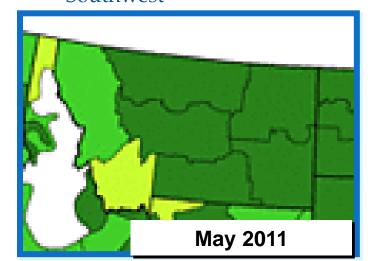


NOAR

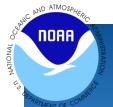
Palmer Hydrological Drought Index June 2011



- * 'Extremely Moist'
 - * North central
 - * Northeast
 - * Central
 - * South Central
 - * Southeast
- * 'Very Moist'
 - * West
- * 'Moderately Moist'
 - * Southwest

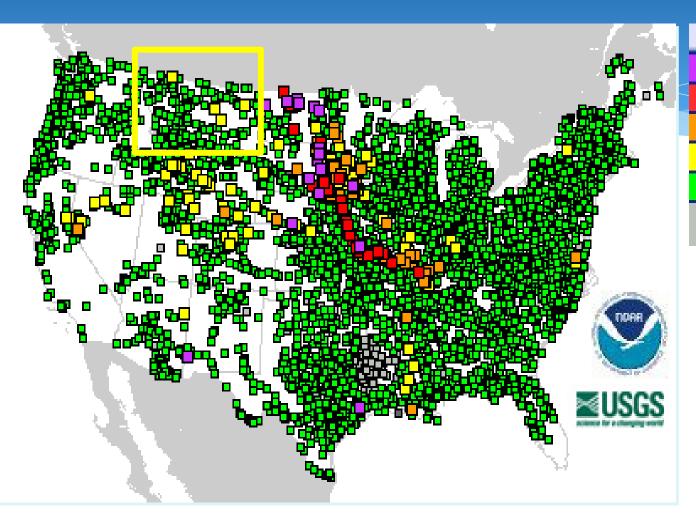


Jul 16



Current Flooding

No sites in Montana above Flood Stage



Map Legend

Major Flooding

Moderate Flooding

Minor Flooding

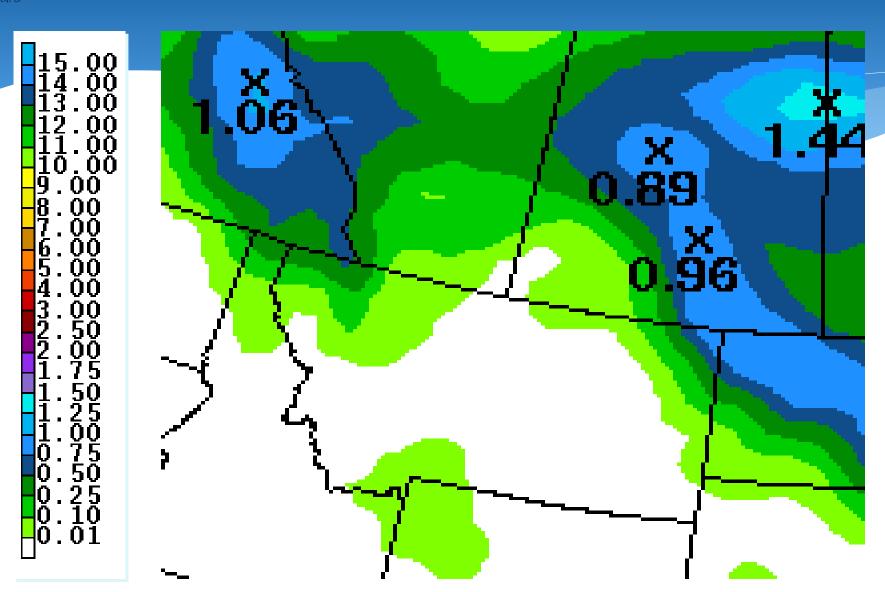
Near Flood Stage

No Flooding

No Data

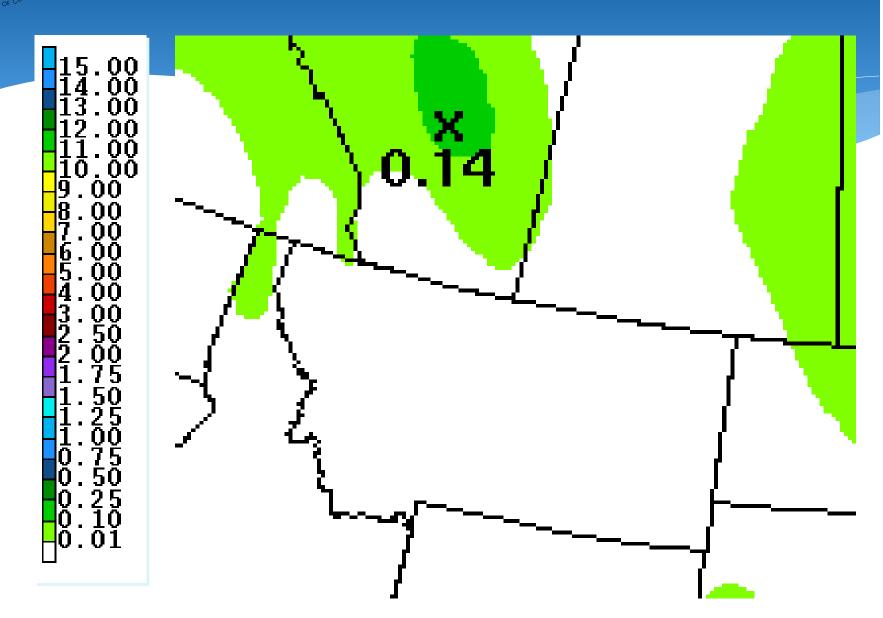


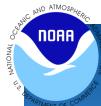
July 20-22 Precipitation Forecast





July 23-25 Precipitation

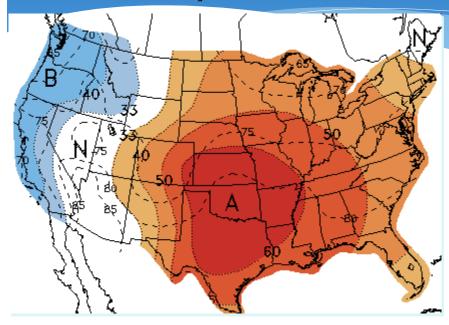




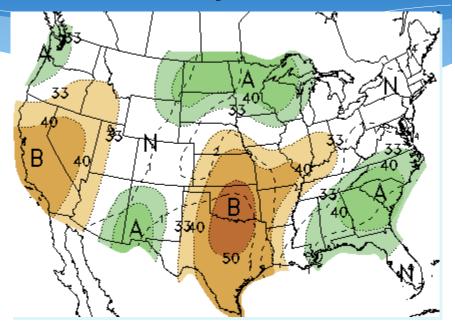
6 to 10 Day Outlook July 25 – 29

Temperature

Precipitation



- * 33% to 40% chance temperatures will be below normal across western Montana; 33% to 40% chance temperatures will be above normal eastern Montana
- * Averages
 - * Highs upper 70s to upper 80
 - * Lows lower 40s to lower 60s

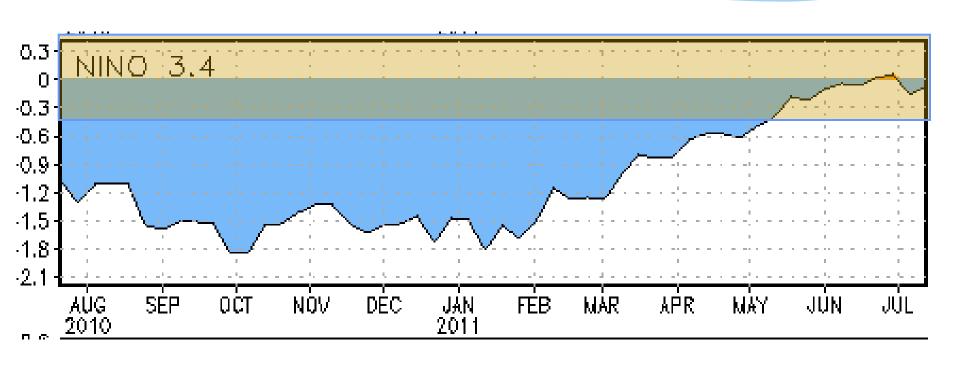


- * 33% to 50% chance precipitation will be above normal eastern Montana
- * Averages 0.15-0.25"



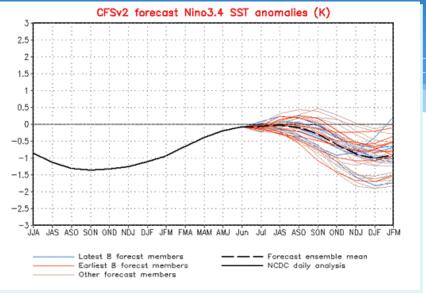
El Niño / La Niña

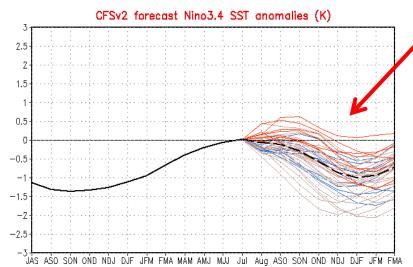
Have gone to ENSO-neutral conditions and will persist into autumn 2011





Forecasts of Region 3.4 Sea Surface Temperature

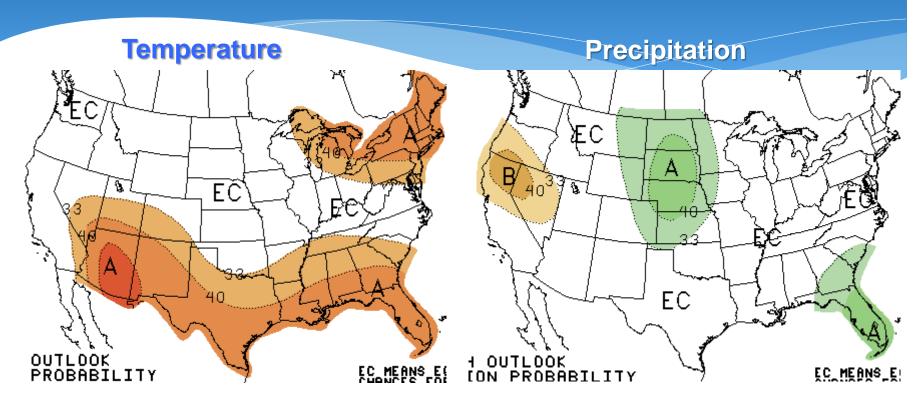




This is the most recent public outlook, but some recent models runs show less certainty of diving back into La Nina Conditions



August – October Outlook Issued June 16, 2011



* Equal chances temperatures will be above...below or near normal

 Better chances precipitation will be above normal eastern third of Montana



In Summary...

- * Drier weather the latter half of June and early July but warmer temperatures kept streamflows up with several sites staying above flood stage into July
- * August October outlook calling for equal chances for above, below or near normal temperatures
- * August October outlook calling for equal chances for above, below or near normal precipitation west and central...better chances for above normal precipitation east
 - * New forecast to be issued Thursday July 21
- * Possibility (with some degree of uncertainty) of a return to La Niña conditions during the late autumn/winter months



weather.gov

weather.gov/billings weather.gov/glasgow weather.gov/missoula weather.gov/greatfalls